

CLAIMS

1. A method of controlling transmission power in a mobile communication system which comprises a plurality of mobile stations, a plurality of base stations, and a radio network controller, said method comprising the steps of:

a mobile station transmitting a first data flow to a base station of a first group with a first power offset to a pilot signal, and transmitting a second data flow to a base station of a second group;

said base station of said first group controlling retransmission of said first data flow, calculating required level of said first power offset based on an occurrence of retransmission, and signaling said required level to said radio network controller;

said base station of said second group receiving the second data flow, and sending the received second data flow to said radio network controller;

said radio network controller combining the second data flow sent from said base station of said second group, controlling said pilot signal power based on a reception error of said second data flow, calculating said first power offset based on said signaled required level of the first power offset, and signaling said calculated first power offset to said mobile station; and

said mobile station updating the first power offset to said signaled first power offset.

2. The method according to claim 1, wherein said base station of said first group calculates said required level of said first power offset based on a target error rate of said first data flow.

3. The method according to claim 1, wherein said radio network controller controls said pilot signal power based on a target error rate of said

second data flow.

4. The method according to claim 1, wherein said radio network controller:

receives said required level of first power offset from the base station of said first group;

selects a responsible (serving) base station for said mobile station from said first group so that said responsible base station receives said first data flow correctly, and most frequently, than other base stations in said group; and

in response to required level of said first power offset from said responsible base station, calculates said first power offset.

5. The method according to claim 1, wherein said radio network controller increases said power offset based on high priority or high delay sensitivity of said first data flow.

6. The method according to claim 1, wherein said radio network controller signals said calculated first power offset to the base station of said first group.

7. The method according to claim 1 or 6, wherein the base station of said first group sends, by a event-triggering manner, said required power offset, said method further comprising the steps of:

initially, said radio network controller setting a reporting threshold;

continuously, said base station of said first group calculating a difference between said required power offset and said signaled power offset; and

said base station of said first group reporting said required power offset by detecting that said difference becomes larger than said reporting threshold.

8. A method of controlling transmission power in a mobile

communication system which comprises a plurality of mobile stations, a plurality of base stations, and a radio network controller, said method comprising the steps of:

said mobile station transmitting a first data flow to a base station of a first group with a first power offset to a pilot signal, and transmitting a second data flow to a base station of a second group;

said base station of said first group controlling retransmission of said first data flow, calculating required level of said first power offset based on a target error rate of said first data flow, and signaling said required level to said radio network controller;

said base station of said second group receiving the second data flow, and sending the received second data flow to said radio network controller;

said radio network controller combining the second data flow sent from the base station of said second group, controlling said pilot signal power based on a target error rate of said second data flow, receiving said required level of the first power offset from the base station of said first group, calculating the first power offset based on said signaled required level of the first power offset in response to the required level of said first power offset from a responsible base station, increasing said power offset based on high priority or high delay sensitivity of said first data flow, signaling said calculated first power offset to said mobile station, and signaling said calculated first power offset to the base station of said first group; and

said mobile station updating the first power offset to said signaled first power offset,

wherein said responsible base station for said mobile station is a base station in said first group receiving said first data flow correctly, and most

frequently, than other base stations in said group.

9. The method according to claim 1, wherein said mobile station controls power of said second data flow so that reception quality of said pilot signal comes to prescribed target quality.

10. A method of controlling transmission power in a mobile communication system which comprises a plurality of mobile stations, a plurality of base stations, and a radio network controller, said method comprising the step of:

a mobile station transmitting a first data flow to base station of a first group with a first power offset to a pilot signal, transmitting a second data flow to a base station of a second group, and transmitting, in addition to said first data flow, a third data flow to said first group with a second power offset to said pilot signal;

said mobile station choosing transmission of either first or third data flow in a time interval but not simultaneously together;

said base station of said first group controlling retransmission of both said first data flow and said third data flow, separately calculating required level of said first and second power offsets based on an occurrence of retransmission of said first and third data flows, respectively, and signaling said two required levels to said radio network controller;

said base station of said second group receiving the second data flow, and sending the received second data flow to said radio network controller;

said radio network controller combining the second data flow sent from said base station of said second group, controlling said pilot signal power based on a reception error of said second data flow, calculating said first and second power offsets based on said signaled required levels of the first and second

power offsets, respectively, and signaling said calculated first and second power offsets to said mobile station; and

said mobile station updating the first and second power offsets to said signaled first and second power offsets, respectively.

11. The method according to claim 10, wherein said first data flow and said third data flow have distinct Quality of Service (QoS).

12. The method according to claim 11, wherein the Quality of Service includes priority and delay sensitivity.

13. A method of controlling transmission power in a mobile communication system which comprises a plurality of mobile stations, a plurality of base stations, and a radio network control station, said method comprising the step of:

a mobile station transmitting a first data flow to a base station of a first group, transmitting a second data flow to a base station of a second group, and transmitting the pilot signal;

determining a transmission power of said first data flow by using a first power offset to a pilot signal;

setting said first power offset in accordance with retransmission status of said first data flow at the base station of said first group;

notifying a corresponding mobile station of said first power offset that has been set; and

controlling a transmission power of said pilot signal so that reception quality at the base station of said second group comes to a prescribed target quality.

14. The method according to claim 13, wherein, in said step of setting said first power offset, said first power offset is set in accordance with a ratio of

incorrect reception of said first data flow.

15. The method according to claim 13, wherein, in said step of controlling a transmission power of said pilot signal, said target quality is controlled so that an error rate of said second data flow comes to a prescribed error rate.